



MANAGERS

Putting building science to work for your bottom line

This document tells company leaders how to use proven technologies and a successful marketing program to gain competitive market advantage and improve your company's economic and product performance. A more efficient home can mean a faster return on your investment

An Invitation to Building Company Managers

We invite you to use the information in this packet to lead your company to increased profits and greater customer satisfaction. Building America is a Department of Energy (DOE) program that has sponsored building science research on 25,000 homes nationwide. These technologies and the Building America systems approach can set your company apart, giving you a considerable competitive advantage in how you design, build, and sell homes.

"I'm very positive about Building America. We are taking an approach of wanting to build a better product in all areas—energy efficiency, indoor air quality, no moisture problems, and one that is sensitive to the environment."

GW Robinson,
President of GW Robinson

Building America

Building America works with the nation's premier building scientists to conduct research and bring knowledge to builders to help them build better homes. This knowledge has been gained from private/public partnerships involving builders all over the country. The program is sponsored by the U.S. Department of Energy. Many builders have adopted the program's principles and improved the performance of their houses and companies. Over 250 builders and vendors have partnered with Building America, including five of the largest 10 builders in the nation. This best practices guide contains results from this research in a form that your company can immediately build into your homes to increase efficiency, comfort, and durability.

QUICK TIPS | MANAGERS

- The smartest builders in the industry are working with Building America.
- Applying the Building America Process can: cut your production costs, reduce risks, improve your bottom line, help make you a market leader, and turn your customers into lead generators.
- This document gets you and your company started.
- ENERGY STAR® can help you market your new and improved product.

INTRODUCTION

Taking action in your community



HOMEOWNERS

Shopping for value, comfort, and quality



MANAGERS

Putting building science to work for your bottom line



MARKETERS

Energy efficiency delivers the value that customers demand



SITE PLANNERS & DEVELOPERS

Properly situated houses pay big dividends



DESIGNERS

Well-crafted designs capture benefits for builders, buyers, and business



SITE SUPERVISORS

Tools to help with project management



TRADES & CRAFTS

Professional tips for fast and easy installation

CASE STUDIES

Bringing it all together

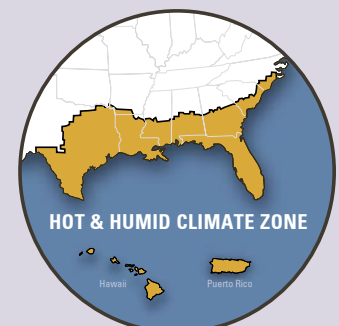


FIGURE 1: A small sampling of Building America's 250 partners

Building America Partner	Ranking among Top 100 Builders
Pulte Homes	2
Centex Corp	4
The Ryland Group	7
Beazer Homes USA	8
K Hovnanian	9
Shea Homes	12
Habitat for Humanity International	16
Weyerhaeuser Real Estate Company	17


The Business Case for Building Science and Energy Efficiency

Why are all these builders working with Building America? The answer is simple - Working with Building America can enhance your company's bottom line through:

- Cost savings from making the best materials and equipment choices
- Reduced risks, increased productivity, and fewer callbacks
- Greater profit margins on energy efficiency and other upgrades
- Competitive advantage in the marketplace
- Customer satisfaction and referrals.

More information on each of these points is presented below. But boosting the bottom line isn't the only reason builders build quality, efficient homes. Builders tell us it boosts their pride in their craft, increases the morale of their workforce, and gives them a good feeling at the end of the day, knowing they're doing their part to help the environment.

Properly Choosing Materials and Equipment

Building science offers many tools to help you pick out the right materials and size them correctly, and to help make sure you are using them to build the right product. Explanations and suggestions on building systems, designs, and trade-offs are in the *Designers*  chapter of this document. The costs of some measures can be more than what you are currently spending. The idea is to use the materials best suited to the job and to size equipment accordingly. Higher prices in one area can be at least partially offset with savings in other areas. Costs for all building materials can vary tremendously in their own right, but your level of experience and design choices have a large bearing. For comparison, some builders find they experience no overall increase in materials costs to offer an energy-efficient package, but others suggest added costs of up to \$1,500 per home. In the *Designers* chapter, we show one example of costs and savings that resulted in a total additional cost of about \$300 on average for the design used by a Building America partner in the hot and humid climate. Read on to find out how this investment can add to your bottom line.

"The biggest benefit is the sense of satisfaction of doing something good. We're conserving the environment and providing a better product to our buyers."

Lucian Kragiel, Co-owner of Atlantic Design and Construction

"I owned a private construction firm for 30 years before I retired and joined Habitat. I'd say, with the Building America practices we're using, these homes are better built than what I built before—and I was building houses up to a million dollars or more and I thought I was building well."

Walter Hendrix, Executive Director of Troupe Chambers Habitat for Humanity and Dependable Affordable Sustainable Housing for La Grange

"There is a sense of pride in knowing that Medallion Homes takes the extra effort in research and production to deliver the best product for the price."

Andrew Nevitt, Architect, Medallion Homes, San Antonio, Texas

Reduced Risks, Increased Productivity, and Fewer Callbacks

These benefits follow closely from selecting and properly using the right materials and equipment. Making a change in your process may take extra time the first few times you try it, but once established, the payoffs can be significant.


One of the great values of using Building America approaches is that they were designed to solve construction problems, such as moisture degradation and mold growth, that plague builders. More than 10,000 mold cases are now pending nationwide, with an increase in cases of more than 300% since 1999 (Insurance Information Institute as reported in Wood and Clift, 2003).

Applying building science reduces the risk of big problems and helps to eliminate the more mundane defects that cost money to fix. If you reduce the time your crews are working on call backs, you increase the time they can be working on new product.

From an Economic Standpoint, Everyone Wins

As a manager, watching your profit margins is a full-time job. The structure of your business and emphasis you place on consistency determines how much profit you get from options packages. Some builders choose to incorporate energy efficiency and health and comfort options into their base price; others include them as options with a profit margin similar to other premium add-ons. Whichever approach you use, the experience of other builders suggest that customers place great value on energy efficiency and will pay to get it.

Profit margins vary substantially from company to company. A National Association of Homebuilders report (1999) and *Professional Builder* magazine (2003) suggest a net profit margin of about 10% on overall house construction. This number is consistent with publicly traded homebuilding companies. Six companies' annual financial reports to the Securities Exchange Commission over 2001 and 2002 reported net profit margins ranging from 4.2% to 9.6%. Gross profit margins over this same time period ranged from 7.4% to 19.2%. In comparison, builders report they have gained about a 30% profit margin on efficiency upgrade packages.

In the *Homeowners*  chapter, we offer an example showing how energy-efficient homes end up costing less for consumers on a monthly basis when both the mortgage and energy expenses are taken into account. Consumers can either pocket these lower costs or use them to buy a more expensive home. Any upgrades translate into added profit.

In short, builders can increase their profits at the same time that consumers lower their costs. From an economic standpoint, everybody wins.

Customer Satisfaction and Referrals

Customer satisfaction matters to your company's future and energy efficiency matters to your customers. Pulte is a Building America Partner that brands its homes using ENERGY STAR. J.D. Power and Associates, a market research firm, gave Pulte's various divisions top rankings in 12 of the 21 U.S. markets it surveys, including Houston, Palm Beach, and Tampa Bay, and placed it among the top 3 companies in 17 markets.

"Building America's technical assistance on building science helped us to reduce callbacks by 70% in our Chicago Division. That's a tremendous savings for our company and means our customers are happier with their homes."

Frank Beasley, V.P. of Building Science, Town and Country Homes.

"Since partnering with Building America in 2001, Artistic Homes reports that its liability for defects and damage has been reduced, as has the number and cost of warranty calls; 'meanwhile, customer satisfaction is at an all-time high,' according to Max Wade of Artistic. The production builder has produced more than 2000 Energy Star homes in Albuquerque, NM, since 2001."

As reported in Builder Magazine 11/1/03

"We offer ENERGY STAR as an upgrade, but everyone chooses it. We have 100% participation so all of our homes are ENERGY STAR."

Lucian Kragiel, Co-owner of Atlantic Design and Construction.

Pulte Phoenix, which J.D. Powers ranked first in that local market, also won the Diamond Award from *Professional Builder Magazine* and NRS Corp., a market research company that works with the home building industry. Pulte had the top customer satisfaction for production builders of nearly 300 builders in the nation.

Paul Cardis of NRS, a market research expert, notes that “customer satisfaction is important for many reasons, not least is that satisfied customers refer future customers and the conversion rate for referrals is twice that of non-referred shoppers.”

Consumers Expect More

Buyers want energy efficiency and they are willing to pay for it. A 2001 *Professional Builder Magazine* survey found that energy efficiency is the number one upgrade that homebuyers seek in a new home. Nearly 90% of new homebuyers in the survey were willing to spend more for energy efficiency features (Johnston 2001). Consistent with this study, the NAHB found that consumers would be willing to spend up to \$5000 more on a new home if it saved them \$1000 on their annual utility bills (NAHB 2002). And Pulte’s customers in Phoenix rated energy efficiency as the most important product-related reason for referring their contractor to new buyers.



Atlantic Design, a Building America partner, was recognized as a 2000 EPA Builder of the Year for its quality energy-efficient construction.

Competitive Advantage in the Marketplace

One of your key goals as a manager is to gain competitive advantage in the marketplace. The technologies described in this packet can give your company a technological edge. One easy way to tell the public about your new product is to partner with ENERGY STAR. ENERGY STAR is a nationally recognized branding program sponsored by the U.S. Department of Energy and the U.S. Environmental Protection Agency. Consumers trust the ENERGY STAR logo to tell them whether their product is energy efficient. Participating in ENERGY STAR is easy and it gives you an effective way to distinguish your product from your competition’s. Over 2,000 builders work with ENERGY STAR in the United States. And half of the 100 largest builders in the nation have at least one division building ENERGY STAR qualified homes.

ENERGY STAR qualified homes are independently verified to be at least 30% more energy efficient in space conditioning and water heating than homes built to the 1993 national Model Energy Code or 15% more efficient than the state energy code, whichever is more rigorous. These savings are consistent with the practices described in this best practices manual. Heating, cooling, and hot water energy use make up about half of a household’s total utility bills.

The September 2003 issue of *Professional Builder* provides six top reasons why customers are willing to recommend a builder. **Energy efficiency is first among the reasons related to product.**

Nearly 93%
of buyers of Pulte Homes in Phoenix had made at least one positive recommendation.




Professional Builder Magazine,
September 2003, p. 67

“Our attention to energy efficiency is what really makes Pulte’s homes stand out.”

Les Woody, Pulte Phoenix
Director of Customer Service

Take the Next Step

This information packet is designed to give your company all the information you need to start using the Building America systems approach in the hot and humid climate. The techniques described will help you avoid many of the problems plaguing all builders in hot and humid climate.

Make sure your team reviews the sections prepared for each of your company's capability areas: marketing, site planning, design, building site supervision, and the trades. This information will help your company compete in an increasingly complex and risky market. Following the design practices discussed in the *Designers*  chapter and the inspection and testing procedures outlined in the *Site Supervisors*  chapter will give you the technical information you need to build your business. Find more information on ENERGY STAR in the *Marketers*  chapter and on the web at www.energystar.gov.

Case Studies

Take a look at the case studies at the end of the book. All offer examples of how builders achieve energy efficiency. Two of the studies offer a comparison in management style. These case studies show builders that companies can either climb stairs, one step at a time, or jump on the elevator and push the button for the top floor. Both approaches will get you to your destination.

Compare *Atlantic Design and Construction's* case study with their neighboring builder, *G.W. Robinson*. Both companies build high value homes in the Gainesville, Florida area. A subtle difference between these companies is in how they got to the point of building highly efficient homes. Atlantic adopted changes to their base practices over time, first just meeting ENERGY STAR requirements (HERS 86), then taking several steps to reach HERS ratings of 89 and 90. Robinson took more of a makeover approach. Robinson also builds homes resulting in HERS ratings of 89 and 90, but made the innovations to do so all at once. Both management approaches are valid and both have resulted in profitable companies building great houses.

Sources & Additional Information

- National Association of Home Builders. *The Truth About Regulatory Barriers*. Washington, D.C. 1999.
- *Professional Builder*. "Where are the Giants Headed? Industry Consolidation is Changing the Way Even the Smallest Production Builders Do Business, but How Far it Will Go is Still Open to Debate." April 2003.
- J.D. Power and Associates. *J.D. Power and Associates 2003 New Home Customer Satisfaction Study*. West Lake Village, California. 2003.
- *Professional Builder*. "Customer Service Standard Setters." September 2003.
- Wood, C., and L. Clift. "Seven Wonders of the Construction World." *ProSales*. October 2003, pp. 28-44.